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FACOLTA' DI SCIENZE

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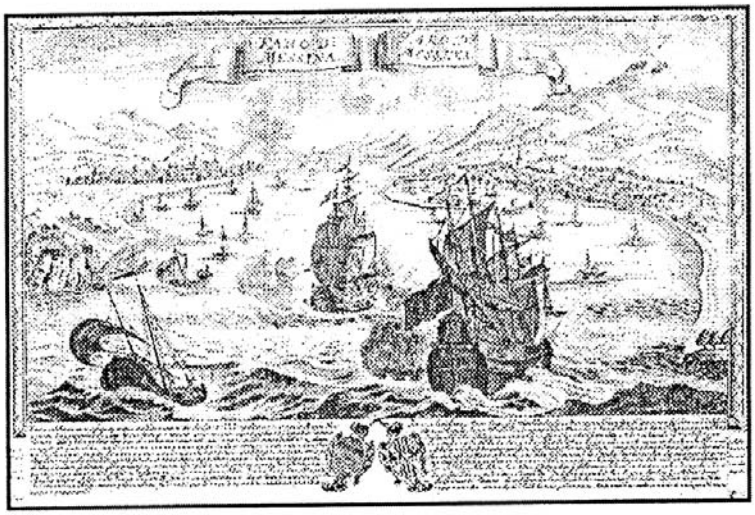
Atti Accademia Peloritana dei Pericolanti
Classe I di Scienze Fisiche
Matematiche e Naturali

WORKSHOP ON PLATINUM CHEMISTRY

ABSTRACTS



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STUDIES OF THE SOLVENT-EXCHANGE RATE OF $[Pt(CH_3CH_2CN)_4]\ (CF_3SO_3)_2$

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Solvent-exchange of complexes of the type PtS_4^{2+} has been studied for S being e.g. H_2O[1], Me_2S[2], $DMSO$[3] and $MeNC$[4]. However, no N-bonded Pt-complex has so far been investigated, due to *inter alia* the instability of $Pt(MeCN)_4^{2+}$. Recently, the corresponding propionitrile complex has been synthesized[5] and we here present rate constants and activation parameters for the reaction

$$Pt(EtCN)_4^{2+} + 4EtCN - d5 \rightarrow Pt(EtCN - d5)_4^{2+} + 4EtCN$$

studied by $^1H - NMR$ and isotopic labeling. Unlike other solvent-exchange reactions of platinum(II) complexes studied so far there is a propionitrile indipendent contribution to the rate of the above reaction, corresponding to a solvent path. The k_1-and k_2-values at 30°C are $0.43 \cdot 10^{-4} s^{-1}$ and $2.4 \cdot 10^{-4}\ m^{-1}s^{-1}$. The activation entropies are -21 and -70 $J \cdot K^{-1} \cdot mol^{-1}$, respectively, indicating an associative mode of activation.

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